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AND THE SCIENCES SUPPORTING PUBLIC HEALTH
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E D I T O R I A L

THE MEDICAL SERVICE REPRESENTATIVE

IN many respects the medical service representatives of the drug industry receive far too little credit for the work which they do and the difficulties they often face. Actually, they are the men and women of pharmacy who by their energy, patience and dedication to the job translate all great medical advances into terms that the average physician can understand and so adapt to his practice.

One has only to follow the detail man, as he is sometimes known, on his daily rounds to appreciate that his task is not just a few social calls filled with serenity and joy but a serious business fraught with all manner of vexations, frustrations and, at times, open insults. He who is not a stable, well-balanced individual is not likely to long endure, and most certainly will not be a great success. The medical profession is more dependent on the detail man than it likes to believe and it is only when the toga of infallibility slips occasionally that this dependence is confessed. The physician is himself so busy that he has little or no opportunity to keep abreast of the current medical literature. He soon learns that a few minutes spent with a *good* detail man saves him hours of reading, for he quickly gets the wheat already winnowed from the chaff. Judging from most medical manuscripts this is no mean feat as any editor knows. The physician is today completely sold on the virtues of new drugs, for most in practice have seen medicine revolutionized by such drugs in only two decades. No longer can new products be ignored in spite of the doubtful status of some of them.

On the other hand the physician is usually a busy and harried individual. The encroachments on his time by trivia hatched up by psychosomatics, neurasthenics, psychoneurotics, *et al.*, are unbelievable. His office day is sometimes almost bedlam in spite of every effort by himself and the office staff to systematize the proceedings. A patient that should require about fifteen minutes may unexpectedly take an hour, patients pile up, some emergency develops, the phone rings incessantly and so on. Picture the detail man asking for a few minutes in the back-wash of such goings on.

There is also a strong element of the *prima ballerina* in many physicians for they are taught to have self-confidence as indeed they must. At times this verges on extreme egotism which is more permissible and generally accepted on the part of the physician than by any other calling in our social structure. The handling of such a person is an art which only the skilled detail man masters but master it he must.

In addition to all the attributes needed to get in and obtain the attention of the physician, the detail man must know his products and understand the pathology and pharmacology underlying them as well as indications, contra-indications, side effects, technique of administration, dosage schedule, etc. These he must understand, not just commit to memory for the discerning physician soon learns when he is being detailed by a phonograph record in man's clothing.

This brings us to one of our reasons for this editorial listing the virtues and vexations of industry's unsung heroes. For many years most if not all of the leading pharmaceutical houses have had as a fundamental requisite for such personnel that they be trained pharmacists. Such a requirement gave assurance that the recruit for such work had the proper background on which to build in the company's training program. It was also of great value in the detail man's contact with retail and hospital pharmacists, whom he also serves.

In recent years a disturbing trend has developed wherein shoe salesmen, plumbers or anyone having a potential sales personality is accepted for training. They are trained parrot-fashion to repeat verbatim a sales spiel which is just so much gibberish to them. Heaven help them when they are interrupted for they must begin over, and a question not already anticipated at the home office leaves them floundering.

This short-sighted policy is certain in the end to be harmful to the present cordial and respected relationship between the drug industry and the medical profession. It is we fear the result of super-salesmen getting in high positions in the pharmaceutical industry—sales executives who see in selling drugs nothing at all different from selling soap, automobiles or beer. There is a difference as we may yet see proven, for once the health professions adopt the same distributive system as those selling whiskey, cigarettes and television we are in for it. The public looks differently on health matters than on pleasure and convenience. For the products supplying the latter it expects to be fooled. In the matter of health products the public

demands responsibility and a social consciousness from the maker right down to the final stage of use.

Drugs can be sold like soap for a while but the day of reckoning will be tragic for an industry which now enjoys great prestige and public respect. Every effort should be made to keep the detailing of drugs on a professional plane. That this requires professionally trained men and women is based on considerations just as valid as those requiring professional training for the prescription pharmacist or even the physician himself.

L. F. TICE



THE MORAL COMMITMENTS OF A PROFESSIONAL MAN *

By Mason W. Gross **

I COME before you today, certainly not as one with any specialized knowledge in pharmaceutical matters, but rather as an educator concerned with the aims and objectives of education, and more particularly as an educational administrator in a university, one of whose most distinguished colleges is a college of pharmacy. I cannot speak therefore with any authority about the profession of pharmacy, or about the internal problems and objectives of that profession. However, I can tell you some of the things which I believe we have in mind when we undertake to educate people for that profession. If by any chance our over-all conception of our function as educators does not seem to you as professional men to be the sort of thing which you need and want, then it is time that we understood each other and came to a full agreement on our respective roles in the education of men and women for the pharmaceutical profession.

Let me therefore first of all state in brief what I believe our over-all objectives are so that you may understand what we think we have to do in preparing people for a profession.

If you will look at the business of education as a whole, from elementary schools through colleges and universities, vocational schools, technical schools, and even apprentice work and on-the-job training, I think that you will agree with me that there are at least three important objectives for education. In the first place, somewhere along the line of the educational process the student should acquire a certain body of technical knowledge or skills which would form the basis for his livelihood, and which would enable him to take his place as a positive and contributing member of society. Somewhere along the way, whether he be a lawyer or a plumber, a pharmacist or a chemist, an accountant or a football coach, a college professor or a railway trainman, he must acquire a certain specialized body of knowledge or certain special skills which other people do not

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** Provost, Rutgers University.

have, and which will enable him to earn his own particular livelihood. This we may call the vocational objective of education, and it makes no difference to the nature of the objective as such, whether the vocation is practiced in overalls or in a white collar, or whether it is more concerned with the printed word, or with manual skills.

The second objective we may call the social objective. Somewhere along the process a man must learn how his society is organized, and must have some picture as to how he as a citizen with a certain specialized occupation fits into that society. He must learn something about the problems that confront the society, both in his own community and on the national and international level. He must learn something about the techniques of social organization, as well as the historical and present objectives of the organization of which he is a part.

The third objective we may call the cultural objective, and it has to do with the acquisition by the student of a critical sense of moral values, religious values, aesthetic values, and so on. Here the student is supposed to learn something about not merely how things are done, but why they are done, and why they are done the way they are rather than in some other way. He is encouraged to reflect on purposes and ends, rather than merely on the satisfactory adjustment of means to ends.

Furthermore, he is supposed to pursue all three of these objectives simultaneously. Thus it could be an objective of this university to turn out men who have been professionally trained, and who have also acquired a sense of social responsibility and a critical appreciation of moral values.

This is quite a tall order for any educational process. It becomes very interesting when you realize that in accepting this full responsibility we are actually merging two historical traditions which were quite distinct, and even hostile to each other. Let me just for the moment take you back into history, so that we can see what these two traditions are. I do this not so much in order to develop a theory of education, but because I think it has a particular bearing upon pharmaceutical education.

One important tradition which we inherit in our schools and colleges comes from the schools and universities of the Middle Ages, which developed and established their special pattern in the period stretching from the Twelfth through the Sixteenth Century. The objectives of the mediaeval university were almost entirely what I

have called vocational. In other words, their business was to turn out trained doctors or lawyers, trained scholars or theologians. In each case there was a certain body of knowledge to be mastered, and when the student was ready he took his examinations and qualified for a Master's degree. It is not simply a pun to compare these Masters of Arts with master weavers, master goldsmiths, master chemists, master apothecaries, and so on. The master weaver might be more concerned with skills, while the Master of Arts was concerned with words, but in each case there was a certain specialized subject matter which the student had to make his own. We talk nowadays about how compartmentalized education is, but I should remind you that compartmentalization is nothing comparable to what it was in the Middle Ages. The Master of Arts did not need to know that the master weaver existed, and the master weaver didn't need to read, either for professional reasons or for social reasons. Furthermore, the student as such really didn't exist in the mind of his instructor, nor was his moral welfare any part of the curriculum at all. If he acquired the specialized body of knowledge, then he became a Master, and that was all there was to it.

The other tradition which we inherit is the tradition of the Renaissance schools and teachers. I suppose one can say that they had a vocational objective, but they did not have a special body of knowledge, or any special skills to communicate as the central function of their system. They were concerned with our other two objectives: the social objective, and the cultural objective. The social objective was somewhat more limited than what I have suggested here. Essentially they were concerned with turning out the future rulers of the princely states, and were definitely concerned with the problem of the qualities of leadership. Their main emphasis, however, was on the cultural objective, and the entire attention of the teacher was focused not upon the specialized body of knowledge, but on the qualities of his subject, namely, the character of his pupil. When this scheme of education was carried over into the Nineteenth Century in England, the objective was said to be the making of gentlemen. Becoming a gentleman may be a vocational objective, and it may have social implications. But certainly as practiced and carried out, the scheme of education had the cultural objective as its primary concern. The function of a teacher was to mold and develop the character of his pupil. The emphasis was not upon what the pupil could do, but what he was. Fortunately the pupil usually had plenty of money be-

hind him, so there was no question about his having to learn a vulgar trade in order to earn a living. If by any chance the pupil did develop some specialized skill, then it became a convention to play that down as if it had no importance whatsoever, and almost to deny that it existed.

Now these two traditions were going on at the same time in the Fifteenth and Sixteenth Centuries, but they didn't touch the same people. Essentially the education of the young Renaissance prince grew up as the revolt against the system of education in the universities, and always affected to despise it.

However, by the beginning of the Nineteenth Century, both in England and in America, the two traditions had more or less merged. A college such as Rutgers, founded in the latter half of the Eighteenth Century, had as one of its primary objectives, the training of professional men. In other words, its objective was vocational, but at the same time the graduates were supposed to be an ornament to their society. The colleges still emphasized preparation for law, medicine, theology, and education. But the isolation of these professions was not as complete as it had been in the Middle Ages, and the curriculum was by no means as well worked out, or as automatic. For good or for evil, these professional men were also supposed to be cultured, and it was even beginning to be suggested that they should know something about the society in which they were going to live.

In England the autonomy persisted somewhat longer. The universities remained the vocational schools, while the so-called public schools, which were, of course, private in our sense of the word, remained the principal training ground for the aristocracy. However, there was a developing tendency for people to go on from the private schools to the university, and gradually the sharp difference between the two began to break down. There grew up a vague suspicion that it might be a good idea if a gentleman knew something, and if a professional man came out of his professional isolation and learned something about the world in which he lived, as well as the moral and aesthetic values which could be cultivated in that world.

The result was a gradual development from a technical training into professional training. Certain patterns of snobbery accompanied this transition, which are now rather amusing to look back on. For example, the doctors of medicine were gradually received into the ranks of gentlemen, but surgeons and dentists definitely were not. Medicine could thus be recognized by the loftier title of a profession,

while the surgeon, who was after all only two steps removed from the barber, practiced only a vocation. In retaliation against this snobbery, English surgeons and dentists to this day refuse to use the title of doctor, because it was once denied to them on snobbish grounds.

Gradually through the Nineteenth Century more and more vocations became recognized as professions, and their practitioners admitted to the ranks of gentlemen, while the very word gentleman itself began to lose some of its exclusively aristocratic tinge. Not only did dentistry and surgery achieve this recognition, but gradually, as we moved into the Twentieth Century, the vocation of journalism began to seek recognition as a profession. The pharmacist began to qualify, and even the manager of a business.

Now there are all kinds of reasons for this, which I don't intend to go into, but I would like to point out that in every case, as a vocation sought recognition as a profession, there came along with it a corresponding change in the educational preparation. So long as the occupation in question was considered merely a technical vocation, nothing was required but technical training, but as the occupation sought admission into the ranks of the professions, the educational curriculum was broadened. Both the social and the cultural objectives were included, not merely because the practitioners wished to be considered gentlemen in their off hours, but because of a new conception of the profession itself. Furthermore, the professional training became vastly more complex and basic. There was no longer merely a question of communicating age-old techniques, but rather a problem of keeping up to date with the advances in science, and with changes in political economy. In every case, however, the professional training became more complex, and longer. Thus we have seen the change in pharmacy from no school training, to a two year curriculum, then four, and now in the future five, and possibly even six years of formal and specific training.

What really came about was a change in the conception of the occupation as such, and this had its educational implications. If you set out, for example, to train a man to be a good steamfitter, then there are certain things he must know, and certain things he must be able to do. Beyond that you have no concern for his welfare at all. If you want to train a girl to be a stenographer, you teach her typing and shorthand, and so on. If you go on to teach her good manners, it's not because you consider good manners necessarily a good thing, but because good manners are essential to her securing a job.

In short, you train your pupil in what is essential for the successful practice of his or her vocation, and beyond that you have no responsibility. If, on the other hand, you are going to train your pupil for a profession, there is not merely the basic technical core at the heart of that profession, but there is a great deal more. Let us, for the moment, examine some of the factors that may seem to distinguish a profession from a mere technique or job, or occupation.

When a man takes a job, presumably he does so in order to earn a living, as well as to pass the time for about eight hours per working day. He does not necessarily expect to find any great internal satisfaction in the job itself, although he may hope that it suits his particular abilities and native skills. Some jobs will give the man a sense of artistic satisfaction, but still when the job is over he usually seeks his social and cultural satisfactions in pursuits quite different from the vocation which he pursues in working hours. He does not expect to find within his occupation his basic source of personal satisfactions. I believe that on the contrary, a professional man does expect to find in the practice of his profession his basic satisfactions. Oddly enough, a professional man usually works much longer hours than a man on a job. Even when they are not actually working they are forever talking shop, and seem for the most part to be absorbed by the internal satisfaction of the profession itself. They, rather than the busman, take a busman's holiday. Their out of hours interests are usually much more closely connected to their professional interests than in the case of a man who has merely a job, or stated the other way around, the job, which is considered as a professional job, is supposed to contain within itself a certain richness of quality and satisfaction which a job considered merely as an occupation is not expected to contain. This implies certain things about the nature of the profession itself, but it also indicates what a man means when he thinks of himself as a professional rather than merely as a wage earner.

In the second place, a man who merely practices a technique expects to have his work laid out for him by somebody else, while a member of a profession lays out his own work for himself. When I engage a plumber or an electrician, I tell him what to do, not technically of course, but in terms of the job that I want to have done. On the other hand, when I engage a lawyer or a doctor, I ask him what to do. As Humpty Dumpty once said, it's all a question of who is master.

This distinction between the profession and the vocation may not be completely satisfactory, but it prepares the way for one which I do think is much more satisfactory. I believe that a profession is characterized by being self-regulating. It lays down its own code of ethics for its members, and prescribes its own rules and regulations which concern the conduct of the profession itself. For example, I don't believe that stenographers get together formally to discuss the ethics of being a stenographer, or even the aesthetics of good typewriting. But the lawyers, through their Bar Associations, do lay down a code of ethics which is supposed to have absolute control over the practices of its members. Plumbers may organize in order to stabilize wages and work conditions, but physicians organize also to lay down the basic rules governing the objectives of their profession, and the ways of carrying these objectives out. I would therefore say that a profession is distinguished by the fact that it assumes for itself, as a profession, a sense of social responsibility and moral obligation.

Now every activity in our society is regulated to some degree. The real question here is: Who does the regulating? For example, it is the municipality rather than the organized electrical workers which determines whether or not the wiring in the given establishment comes up to required standards, and the electrician who fails to produce work that is up to standard comes into trouble with the city officials before he runs into trouble with his fellow electricians. On the other hand, a lawyer who fails to abide by the professional code of ethics can well get into trouble with his Bar Association before he actually comes into conflict with any existing laws.

Thus I would say that it is perhaps this mark of responsibility which distinguishes a profession from other forms of occupation. The willingness to recognize the responsibility of the profession and of the practitioners of that profession, and to formulate these responsibilities in a code which can be accepted by the practitioners, indicates the acceptance of both our social objective and our cultural objective alongside the merely vocational objective in the conception of how the profession is to be run, and what kind of education is necessary to qualify one for that profession.

Thus it is tautologous to talk about the moral obligation or the social responsibility of a professional man. If the sense of moral obligation and the social responsibility are not there, then it is not a profession. The practitioners are not self-regulating, and they take their direction from public law. Here again of course a question

arises as to when the profession really becomes a profession. When can the community leave it up to the profession to assume this responsibility and carry it out effectively? I suppose that there are two answers to this question. One mark that a profession has established itself as a profession, would be that the community began to expect that malpractice of that profession would be subject to criticism by other members of the profession before it ran into conflict with actual law. There are still laws on the books, for example, regulating the practice of law. But as I said earlier on, the public expects the Bar Associations to police themselves, and does not expect a recognized member of the profession to run into conflict with the law itself in the conduct of his profession. The same is true in the case of laws regulating the practice of medicine, pure food and drug acts, and so on. When the public expects that the profession will police itself, then I think the profession has arrived at maturity, and need not so much worry about existing laws, because it is aware that it is self-regulating and self-policing, and that its reputable members will never come into conflict with the law first.

The other mark is the nature of the preparatory curriculum. When serious attention is given in the preparation of the future members of the profession to the social organization in which they are going to carry on their professional work, and to the moral and cultural responsibilities of their work, then again the profession can be said to have arrived at maturity. But I must insist as an educator, that it is not sufficient that the student in the College of Pharmacy take courses in English, Philosophy, or Art. These courses have to be understood as having some bearing upon their professional work, or the maturity has not been achieved.

This is not just simply a matter of idle interest as to whether this, that, or the other occupation achieves maturity as a profession or not. Actually one might say that a democratic society is distinguished from an authoritarian one, in proportion as the various occupations in that society have achieved the level of professions. It was to lay the background for this point that I insisted upon my second qualification of a profession as being in a sense self-ordering. In an authoritarian society all professions become vocations in this sense, for they take their orders from outside, and their standards are regularly authorized for them. A society which can tell its biologists what biological theory they will believe, takes away from its lawyers, its physicians, and all its other professional men, their

autonomy as members of a profession. A democracy, on the other hand, purports to be an organization of self-regulating individuals, groups, and professions. The source of regulation comes from below rather than from above, and rules are laid down by a central government only when the several participating organizations have not achieved a level of self-regulation.

I might point out one rather curious anomaly in this connection. We talk about the military profession. It is in our tradition in this country to shy away from the notion of the military as a profession. Historically we have always hoped that people will not find internal satisfaction in the military profession, but will return like Cincinnatus to the plow. We do not want the military to be self-ordering, and we have traditionally always insisted that the men ultimately in charge of the military shall not be military men themselves. Furthermore, we have really shied away from the notion of their being self-regulating in the sense of applying their own codes of ethics to themselves. We have heard too much about the code of ethics from the German General Staff. Because of the very nature of the occupation itself, we have always wanted to deny to it the qualifications of a profession and keep it as a duty or an occupation. Whether this historical attitude can persist as more and more of our citizens are drawn into this occupation and remain in it, will have to be seen later.

In conclusion, then I would say that a profession is a profession when it contains within itself enough richness and variety to be an absorbing source of satisfaction for its practitioners; when it essentially is self-ordering in the sense that it is concerned with the ends of the profession and not merely with the technical means towards achieving the ends laid down by someone else; and when it is self-regulating in the sense that it has a code of ethics which determines for its practitioners their social obligations, and their moral responsibilities. If you will forgive me for tooting the horn of my own job, may I say that a profession becomes a fully fledged and fully mature profession when it is concerned with the philosophical implications of its work, and concerns itself not merely with present fact but with theory, and when it does not turn over to others to determine what its moral obligations are but assumes full responsibility both for discovering, and for enforcing those obligations itself.

THE ROLE OF GOVERNMENT AS IT AFFECTS THE PHARMACEUTICAL INDUSTRY AND PROFESSION *

By Albert H. Holland, Jr.**

IT is both a pleasure and a privilege to come to the State University of New Jersey, my home state, and participate in this Fourth Annual Rutgers Pharmaceutical Conference. We meet in this great institution of learning in a spirit of friendship and good will, in quest of knowledge of another great institution—the profession of pharmacy. We meet to examine and to reassess its problems and its progress. We meet to contribute and to construct. We meet to learn and to leave. We meet to further our understanding of our joint problems and of each other.

As one reflects on the role of Government as it affects the pharmaceutical industry and profession it seems unavoidable not to view the larger question of the essential role of our democratic form of government. Its only purpose, its basic purpose, is the common good, and without undue poetic license, to insure our common protection—social, military, and health. Any other role for government is wholly inconsonant with all that we and our forefathers could contemplate with tranquility, satisfaction, or security. Certainly it is clear that the proper role of government in pharmacy and the pharmaceutical industry is the extension and application of this self-same principle—the doctrine of the common good, our common protection—to a specific area of endeavors and its special problems. Likewise, the Federal Food, Drug, and Cosmetic Act is premised on the identical concept: the protection of the public health and welfare. It is a consumer-protection statute. It was enacted to prevent abuses and to provide a legal means of coping with those who cause them. It is peculiarly schizophrenic: it is a manifestation of man's prime instinct of self-preservation, yet a tribute of great moment to his recognition of moral and ethical precepts. We need these precepts. They are not nebulous. On the contrary, they are indeed practical. They are the

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very stuff without which true progress and its companion prosperity cannot grow or long survive.

In light of these principles and the beliefs that this philosophy engenders let's now turn to some of the important and oft troublesome problems abroad today. Because they are troublesome, they demand the attention of the best minds in both industry and government. They require leadership.

The Durham-Humphrey Amendment, enacted in 1951, has been a subject of discussion and dissension. One of its chief objectives is to provide a basis of distinction between prescription and over-the-counter drugs. One of its chief requirements is the preservation of the integrity of the prescription legend. It places on the pharmacist the clear legal responsibility not to sell or otherwise dispense a prescription legend drug in the absence of a properly executed prescription. This seems simple enough, doesn't it? All the pharmacist has to do is to read the manufacturer's label on the drug package and he can immediately determine whether or not a prescription is necessary. If it is, the law requires the manufacturer to so state. The words are, "Caution: Federal law prohibits dispensing without a prescription."

Most pharmacists are proud of their professional status in society. They recognize and fulfill the responsibilities which it and the law impose. It is from this group of respectable and respected men that your leadership must come. Your number is legion.

Now there is another group who, for reasons which are not entirely clear, apparently choose to violate this section of the law. They can read the legend on the bottle or package. They are professionally trained. When apprehended, all kinds of excuses are proffered, but the one heard most is a charge of entrapment. There probably is no other word so misused or perhaps misunderstood. Entrapment, legally defined, is the use of illegal means or coercion on the part of the law enforcement officer to cause an individual to violate the law. This is obviously not the case when a customer asks the pharmacist for an **B** drug but does not have a prescription. Neither is the asking a violation of the law. That occurs when the pharmacist knowingly dispenses the drug without the required prescription. Two points here are of cardinal interest and, I believe, speak for themselves. First, the Food and Drug Administration as a legal enforcement agency has never lost a single case in the courts as a result of an entrapment charge by the defendant. Second, we institute an investigation only when we have received a complaint or have other rea-

son to suspect violative practices. We do not have the time, the money, or the staff to play hide and seek in over 50,000 drug stores in this country. When our inspectors do investigate a complaint they are always certain to make repetitive purchases in order to fully document the case and establish a willful disregard for the law. From where do these complaints arise? Let me tell you. They come from physicians, from local police departments, from dismayed relatives, and from many honest pharmacists who wish to maintain the integrity of their profession.

Now to go back. Let's attempt to explore some of the possible, if invalid, reasons why some resort to these practices. Herein may lie a fruitful avenue for further study and exploration. Hopefully, some violations may be avoided. Extended discussion is not possible now but the following suggestions may deserve your consideration since they relate to reasons which have been advanced.

1. Better orientation and training of non-professional clerks so that inadvertent sales of prescription items are not made.
2. Installation of better business and inventory control practices so that employees cannot easily deceive and dispense illegally.
3. A positive educational service program for doctors on the requirements of the law with respect to prescriptions and prescription refills.
4. An increased public relations program so that your customers understand that you are exercising your professional responsibilities under the law.
5. More vigorous and forthright programs of ethics and enforcement in your state and local professional societies.

Despite the so-called reasons for violations which led to the formulation of the above suggestions, financial considerations regrettably seem to motivate the large majority of Durham-Humphrey violations. Ugly as it may be, it is here that the pharmacist relinquishes his professional status and degrading himself becomes just a dishonest merchant. Yet listen to the words of an apprehended violator, listen to him spout and blubber: "In the past whenever a patient appeared before me for a refill, I did not ask myself, 'What if this is an FDA trap and I refill this prescription?' Rather, if my

thoughts could be worded they would be, 'This fellow human being may be in a sea of trouble, pain, and misery, and I shall not fail to grasp his outstretched hand.' "

Have you ever stopped to think that the prescription legend on a drug is an absolute recognition, a public recognition, a legal recognition of your professional status? It affords you privilege. Its abuse cannot pass unnoticed. It would be contrary to the essential role of government—the protection of our people and our nation. It is contrary to the law.

There is another problem of growing magnitude with which your profession and the pharmaceutical industry must eventually come to grips. It is the pernicious practice of substitution. Several manufacturers estimate that they are losing as much as 20% of their sales volume on some items because of it. Everyone recognizes and appreciates that the average pharmacy must be selective in its stocking. Few physicians object to a legitimate request from the pharmacist to dispense another brand because he temporarily does not have that which was prescribed. That is not the problem. This problem is one of outright dishonesty. Buying a cheaper, often illegal, imitation of a good brand product, and unbeknownst to the doctor or patient, dispensing it in lieu of the brand product prescribed and of course at the higher price. There is only one discernible reason for this blight. One word—money. This is a problem for pharmacy. It is, in fact, a refutation of the years of painstaking work and effort which so many have given to establish pharmacy on a sound professional basis. You may be assured that the manufacturers will continue to devise and study ways and means of effectively combatting the practice of substitution. Where mislabeling, misbranding and danger to health is involved, appropriate governmental action can be anticipated.

Aside from the obvious consumer protection that the Federal Food, Drug, and Cosmetic Act provides for all of us, there are some other rather subtle advantages which I should like to mention. The *American Druggist* magazine reports in its February 14th issue that 38 new products were introduced in 1954 just to help combat high blood pressure. The March 14, 1955, issue of *Drug Trade News* reports a study by Mr. Paul DeHaen in which it is stated that in the year 1954, 380 new drug products were placed on the market by 101 manufacturers. In addition, 108 new dosage forms of products previously marketed were introduced. Fortunately the law provides for proper labeling, package insert information, and dosage directions

which convey a wealth of necessary information so that you and the physician can dispense and use the drug safely and effectively. What a horror of confusion there would be were this not so. No independent pharmacy and few chains could possibly afford the expense of keeping up with each product of each manufacturer. This information intelligently and imaginatively used can help you materially in your physician relationships and therefore in your business. In pharmacy as in the other professions you cannot render service in the absence of knowledge.

The existence and enforcement of the Food and Drug law is in effect a great legal protection to you personally. Rarely is a pharmacist compelled to defend himself in the courts because a drug he dispensed did not produce the desired effect or produced an adverse effect. Providing a prescription is accurately filled or an over-the-counter item is not misrepresented, you have little cause for concern over drugs in interstate commerce.

I recognize that the law and its regulations often are inconvenient if not burdensome. There seems little alternative, however, in a highly organized society such as ours. The burdens and responsibilities of the law are far less than those we might anticipate in a complete free-for-all. While standardization must never be allowed to inhibit or prevent progress, the establishment and maintenance of high standards has many undeniable salutary effects. The entire concept of standards, once divested of their purely technical content, lead logically and directly right back to our fundamental tenets of morals and ethics. It would seem reasonable, that despite the relatively minor burdens, pharmacy would demand a stricter enforcement program. It would help promote fairer competition. It would help you to solve the problem of dealing with recalcitrant colleagues. It would help present a more uniform public and professional relations situation, thereby easier of solution. It would aid your profession to maintain the high professional standards which you have set for yourselves. To demand less would acknowledge an inability to sustain the professional status of pharmacy.

You have in your ranks many outstanding citizens. One among you I should like to pay particular tribute to today. He has, for more years than I have had the pleasure of knowing him, been a leader in your profession. He is a man of exceptional character and integrity. His name is Dr. Robert L. Swain. Not long ago, he editorialized with penetrating and sincere eloquence. Here in part is what he said:

"In the first place, it must be borne in mind that the food, drug, and cosmetic act was passed by Congress largely to protect the consumer from adulterated or misbranded drugs and medicines. It is a 'consumer law', as the courts have so often declared. The Durham-Humphrey Amendment is merely an extension of the consumer-protection character of the food, drug, and cosmetic act. Under the Amendment, certain drugs are limited to prescription, simply because they may not be safely used, except under competent medical advice and direction. The power of enforcing the act, in the public interest, is vested in the FDA. But medicine and pharmacy also have the responsibility to see to it that the requirements of the act are met in the writing and dispensing of prescriptions. Indeed, it can be truthfully asserted that physicians and pharmacists share with the FDA the burden of so observing the law as to assure the public the protection which Congress so clearly intended when the Act was passed. Considerations of fundamental policy are involved in this matter. Medicine and pharmacy, as I see it, owe it to themselves and the public to line up with FDA in the effective and sensible enforcement of the law. If the law is in the public interest, it is in the interest of medicine and pharmacy to be identified with its consumer purposes and objectives. Any other course of action on their part would be incredible and unexplainable." These words of Dr. Swain are incisive and cogent. I urge all of you to review his editorial in the January 10th issue of *Drug Topics*.

While government today is an exceedingly complex affair, its primary role and purpose remain unchanged. It is complex because our society is complex, our industry is complex, and our knowledge is complex. No individual nor any government can be all things to all people. Some will suffer, some will prosper. But its course must remain clear. Now more than ever before, now is the time for leadership.

FOR WANT OF A NAIL*

By G. F. Roll **

PERHAPS some of you experience the particular kind of torture I do when faced with the job of making a speech. I guess this time it could be described as my very own special way of dying for dear old Rutgers! It all began a few weeks ago with a very vivid dream, which went something like this: I had been thumbing through a large pile of trade papers, and on the front page of *Drug Trade News* suddenly there appeared a big story with this headline—"President Eisenhower Confers Special Award on Pharmaceutical Industry for Role in Polio Victory". Then, a whole panorama of wonderful banners appeared before my eyes: *American Druggist*—"Nationwide Poll Shows Public Thinks Prescription Prices Reasonable"; the "Pink Sheet"—"Drug Industry Executives Speak on Programs of Twenty State Medical Society Meetings in 1955". Suddenly, I saw a headline that I recognized, and I knew I was awake again and back to reality. It was the story you all read not so long ago under the byline of none other than Drew Pearson, and it read "Monkeys Unsung Heroes of Salk Vaccine Saga!"

That dream, fantastic as it seemed at the time, was grist for my speechmaking mill. It dramatized the very point I want to make today.

I am going to suggest, here and now, that those dream headlines could have been *real*. They could have been, that is, if the pharmaceutical manufacturers had done something about their public relations.

I suppose a talk about the fundamental principles of good public relations should begin with a definition of public relations, but there have been so many of these uttered in the past few years that I hesitate to add to the list. Furthermore, I'm sure I can't improve on the definition of one expert who said the substance of public relations is morality, service and communications. In the case of a drug manufacturer, morality implies that his motivation is in the public interest; service means that he markets a sound product, and communications

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means that he tells his story and tells it well. No one of these ingredients is sufficient in itself. All three are necessary, like the legs of a tripod, if the structure of public relations is to stand.

If one were to set out to find a single industry in America which, on the face of the evidence, is best able to marshal all three of the elements of the recipe in strong and equal measure, he might very well choose our own industry from all the rest.

As to the first ingredient—morality—we have been unanimous in our agreement that our first duty is to avoid the false or exaggerated claim and to avoid exploiting in any way the areas of human fear. As advertisers, we are scrupulously honest. As a result of this honesty, we have built a remarkable degree of trust between ourselves and medicine and pharmacy. The Food and Drug Administration, ostensibly a policeman, is actually our friend and collaborator, as Dr. Holland, who preceded me today, would be the first to attest. I honestly think the medical profession, almost to a frightening degree, believes what most of us say in our product advertising.

The giving of corporate funds on an unrestricted basis in support of medical and pharmacy schools and hospitals, as well as to such organizations as the National Fund for Medical Education and the American Foundation for Pharmaceutical Education, is further evidence of the acceptance by our industry of its moral responsibilities. There is ample evidence that by and large the ethical pharmaceutical manufacturer is a respected member of his community.

The second element of public relations—service—is implicit in the very nature of our industry. In the warfare on disease—a warfare which has spectacularly lengthened the human life span by a quarter century within two generations—we, the drug manufacturers, have served as weapons developer, proving ground, quartermaster corps, and arm of supply. Obviously, the credit for this is not ours alone. But, through research in our own laboratories and support of research in laboratories of medical and pharmacy schools and hospitals, it can truly be said that our industry has played a central role in the greatest health revolution in history.

But do our publics—doctors, pharmacists and the general public know this? The answer brings us to the third ingredient in the recipe for good public relations, and the reason for these remarks—the matter of communications. For it is in its inattention to this essential ingredient that our industry has thus far failed, and is in danger of losing the battle by default. To borrow an old saying,

we're in danger of losing the rider for want of a horseshoe and nail.
And what we need to nail home is our own story.

I have the greatest respect for attitude surveys, but—we don't have to wait for surveys to learn that we have a public relations problem with the pharmacist in regard to substitution. We don't have to wait for surveys to learn that we have a public relations problem with the doctor in regard to volume of mail and samples. We don't have to wait for surveys to learn that we have a public relations problem with John Q. Citizen when it comes to prices.

Now, of course, the reason for these problems lies in a lack of understanding—a lack of understanding of how our industry operates in relation to the doctor, the druggist, and government agencies, and also a lack of understanding concerning the research, development and production of those products which have contributed so much to the health and happiness of our people.

I need hardly go on playing for this audience a theme of persuasion that the drug industry needs and deserves a public relations program.

Yet, what happened in the case of the recent public hue and cry over the Salk vaccine? Everybody concerned with the vaccine was a hero. Everybody, that is, except the people who made the material. Then, when difficulties apparently developed, the drug industry was attacked—the same industry which had undertaken in advance a long-range and far-sighted program of manufacture, to assure that when the report came in, the vaccine would be in immediate supply.

The Wall Street Journal, in an editorial last week, recognized this very point. (I quote) "In all the excitement, and at times controversy, over the Salk polio vaccine, it seems to us that the role of one group of men has been generally misunderstood. This group is composed of those who make the vaccine, the drug manufacturer.

"It is a great temptation of statement-happy politicians to blame them for the fact that we don't have enough vaccine to inoculate instantly all 160,000,000 people.

"Yet, we think it worth noting that if it should happen this summer that the nation escapes its accustomed blight of polio by widespread use of the serum, their contribution to the event will be second only to that of the indomitable Dr. Salk himself.

"It will be just three weeks and a day since it was announced that the Salk serum was a success, less than that since the Food and

Drug Administration officially licensed the serum for general distribution.

"In view of that, it is remarkable that the serum is available in any quantity at all; much more so that there was sufficient serum to vaccinate all children in the most dangerous age bracket.

"The size of the present supply is due to the foresight, the initiative, and planning of the leading drug manufacturers—and to their willingness to gamble on Dr. Salk for the benefit of the nation."
(End quote.)

It would have been wonderful indeed if others had appreciated this truth besides the editorial writer of the *Wall Street Journal*. The reason they didn't—and still don't—is our fault. Why? Because we failed to conduct, for the sake of our own protection, a campaign in the interest of public understanding, to offset the emotionalism and exaggerated hopes that were being generated in other quarters.

Of course, it is always easy to second-guess, but if the industry had had a central public relations office whose identity was established with the press, radio and television, it would have been possible through news releases to remind the public that even in case of favorable report, no vaccine or inoculation, beginning with Jenner and his cow, has ever been one hundred per cent effective, or entirely free of side effects. This same office could also have warned the public of a possible shortage of the vaccine in advance of the Francis report.

Now, what lesson have we learned from this experience and what shall we do about it?

One recent proposal holds that the drug industry can conduct its public relations only by joining hands with the medical profession, the retailer, and the other members of the medical care team. On the surface, this suggestion has a certain attraction. I merely raise one question: Is it practical?

Surely no one here, in the course of his years in business, has missed the frustration and futility of trying to get action out of a committee, particularly one whose members themselves have a conflict of interests. Committees representing diverse interests are a fine device for accomplishing compromises—but a poor weapon with which to hit a target.

My own feeling is that this is a job for the drug industry alone, it's our problem. Let's solve it ourselves. But, in solving it, we

will be helping all members of the medical care team. There are now underway two major surveys, conducted by scholarly bodies under the most respectable auspices and designed to tell us all about public attitudes toward health problems, medical costs, and so on.

When all the pollsters have made their calls; all the doorbells have been rung; all the questionnaires have been assembled, collated, tabulated and broken down; when all the reports have been written, rewritten, tested for objectivity and finally approved—the results of these surveys can reasonably be expected to add to our fund of information about the vagaries and prejudices and attitudes of John Q. Citizen.

But can we afford to wait?

What about the horse and rider that were lost for want of a nail?

Perhaps the other members of the medical team can afford to wait for the results of the surveys. But our problems are real enough, and specific enough, and close enough to home, so that we can get busy on them right now.

In fact, as I've mentioned before, some of our problems revolve around our public relations with other members of the medical care team themselves. One, of course, is the whole matter of substitution. Another is the continuous and never-ending job of explaining to the physician that the flood of information, advertising and promotion which inundates his desk is not a plot on the part of drug manufacturers to bewilder him; but is in fact the operation of the free market of ideas, development, distribution and competition which has vitalized in our century the conquest of disease. Added evidence, if you will, that this public relations task is one which we should face and tackle, not in collaboration with others, but courageously by ourselves.

Perhaps it's time at this point to get specific and of course, we all know how difficult that is.

I'm reminded of the grasshopper who grew tired of spending another frugal winter and went to the ant with the proposal that he cease being a grasshopper and become an ant. The ant pooh-poohed all this—pointed out that they had to work 24 hours a day, all year round, and that the ant in charge of dispensing the grub was a so-and-so. He recommended that the grasshopper become a cockroach . . . they had it easy, living off the untidy food habits of human beings and not having to work at all. The grasshopper, delighted, with the suggestion, said, "Gee, that's fine . . . now tell me how do I go about becoming a cockroach?" "Oh heck," replied

the ant, "I wouldn't know anything about a detail like that. That's an administrative problem: I only pass on policy."

Well, believe it or not, unlike the highly specialized old ant we're not only prepared today to find what would be nice, but to *suggest* how we might possibly achieve improvement.

I suggest, as a first step, that the leaders of the industry set up a steering committee composed of their own public relations people.

I suggest that this group, in turn, be empowered to set up within the framework of one of the trade organizations, a public relations office, with a modest but adequate staff, to serve as watchdog and spokesman for the common interests of the industry.

Let me say at once—this need not involve a huge budget, or an elaborate schedule of full-page ads in the large circulation magazines. I shall return in a moment to a thought or two about specific jobs that this industry office could do.

In creating such an office, it's obvious that we should find a man to head it whose skill and integrity we trust, and to whom we're willing to delegate, with a minimum of interference or direction or committee meddling, the projection to the public of our story.

As to the story itself, it seems to me it could be based on certain premises.

For one, I sometimes wonder if the best way to defend the free enterprise system would be for us to stop talking about it. We have an unparalleled record of disinterested public service. Let's play that theme for all its worth and let the American consumer forget our interest in the profit motive.

We need to nail down in the public consciousness the indispensable role the pharmaceutical industry has played in adding twenty-five years to the American life span in two generations. We've let our credit go by default.

As for our present activities, we need to remind the public and to remind them again, of the extent and nature of our continuing adventures in research, as we work in our laboratories and take our long shots and calculated risks, in the development of new drugs for the improvement of the nation's health.

As a corollary, we need to carry on a campaign of recruitment in colleges and universities in order to maintain the standards of manpower in the pharmaceutical industry, in order to continue to draw to our laboratories a fair share of the brilliant young scientific personnel on which our own survival and the national health depend.

As I said a moment ago, this need not involve enormous outlays for advertising, but rather an alert and skillful knowledge of public relations techniques—an ability to recognize situations and exploit them in the interests of the industry.

For example, on Sunday, May 1, the *New York Times* carried a story in which the Jewish Consumptive Relief Society announced that it is changing its name to the American Medical Center in Denver, Colorado, where its hospital will cease to be a tuberculosis sanitorium and will become a hospital for free cancer care. This transformation is due entirely, of course, to the magical amelioration of the tuberculosis problem through the use of drugs, and the story could easily have been re-written and distributed as one actually emanating from the drug industry. Its news value could have been unchanged. This, in itself, may seem to be a tremendous trifle, but it is the cumulative effect of a continuous stream of such trifles that is important.

The Federal Government is hardly as reluctant to beat the drum on its own behalf as we are. I pick up a copy of the May issue of the *Ladies Home Journal*, and I read that a disease called "retrolental fibroplasia", a cause of blindness in premature children which already has cost the nation an estimated \$800,000,000 is solved by the expenditure of \$51,000 by research teams supported by the National Institute of Neurological Diseases and Blindness.

I pick up a book called "Facts on the Major Killing and Crippling Diseases in the United States Today", published by the National Health Education Committee: I learned, from giant size type on as early as the fourth page, that "between 1944 and 1952, medical research (*much of it aided by Federal funds*) has reduced the death-rate from all causes by 9.4%". (Not a word about *our* research!)

Question: Why are we so often "the little man who wasn't there" when the orchids are being handed out?

Apart from the obvious channels of newspaper publicity, we could certainly afford the production of some films on such subjects as the drama of our research. We could tell this story from more than one point of view. We could gear it to the general public in one version. In another, we could use it in our recruitment of young scientists. These films would be welcome in the program departments of television stations, and would be available for other use, as well.

It would be possible to multiply those particulars, and many of you in the audience could do it better than I. The important matter

at this point is not the details, but the decision—the decision to *do something*.

This meeting, I believe, was officially called a conference, which reminds me of a definition. A conference was once described as a meeting of men who individually can do nothing, and who collectively can decide that nothing can be done.

I can only hope that the upshot of this conference will be to give the collective lie to that definition.

I thank you.

CLINICAL STUDIES ON ANTICANCER AGENTS.

VI. (1951-54)

By John R. Sampey *

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RECENT surveys on the current clinical application of anticancer agents have covered more than 525 references to the literature (107, 108). The present paper adds 140 studies not reviewed previously. It will be noted that triethylene melamine has been the most used chemical against a broad spectrum of human neoplasms. Nitrogen mustards constitute one of the favored agents for the management of lymphomas and the leukemias. Among the hormones it will be seen that estrogens outnumber all other products of the endocrine glands in their inhibition of malignant tumors. This study opens with a survey of a dozen clinical applications of radioactive isotopes, and it closes with a score of different miscellaneous anticancer agents in the current medical literature.

I. Radioactive Isotopes

Radio phosphorus. Wiseman and associates (137) found P^{32} safe and effective in controlling polycythemia vera over a ten year period, and Stroebel, et al. (124), reported remissions for one year or longer in 75 to 90% of their patients with this same neoplasm, following radiophosphorus therapy. Osgood and Seaman (85) noted statistically significant prolongation of life in 163 patients with chronic leukemia after P^{32} therapy, and this isotope has proved effective in treating myeloid leukemia (24, 49), and lymphosarcoma (49).

Radioiodine. I^{131} therapy continues to be used against thyroid cancer (24, 49, 128) and Kriss, et al. (65), described subjective and objective improvement in 7 patients with multiple myeloma after I^{131} treatments.

Radiogold. Au^{198} has proved effective against a number of human neoplasms (24, 49, 58), but Stemberger, et al. (122), noted that malignant cells persisted in the pleural fluid in 14 of 30 cases after radiogold therapy.

Radiocobalt. Co⁶⁰ has been employed clinically against cancer of the bladder (72, 98), skin (98), and sinus (28).

Radiosodium. Riordan (98) treated cancer of the oesophagus with Na²⁴, and Dutreix and Pierquin (24) used the isotope against myeloid leukemia.

Radioiridium and Radiotantalum. Riorden (98) employed Ir¹⁹² and Ta¹⁸² against skin cancer.

Radiochromic Phosphate. Colloidal radioactive chromic phosphate, CrP³²O₄ reduced the fluid in the pleural cavities of 3 patients with pleural metastases from carcinoma of the breast and ovary (116).

II. Organic Nitrogen Compounds

TEM. Triethylene melamine has found extensive use against a number of human neoplasms, including Hodgkin's disease (4, 11, 16, 27, 28, 45, 57, 62, 74, 75, 86, 92, 106, 110, 114, 140), lymphomas (4, 11, 16, 27, 57, 62, 74, 75, 91, 92, 106, 110, 114, 140), myeloid leukemia (8, 10, 45, 47, 57, 62, 74, 82, 92, 99, 102, 114, 140), lymphatic leukemia (8, 10, 47, 57, 73, 74, 82, 86, 91, 92, 99, 102, 103, 106, 123), acute leukemia (5, 74, 75), polycythemia vera (16, 27, 45, 73, 75, 86, 102, 104, 130), monocytic leukemia (17), granulocytic leukemia (68), myeloma (75), granulomatosis (82), lymphoblastoma (84), and sarcomas (21, 140). Sorti and Menzine (123), however, reported no response of their patients with acute leukemia to TEM. Slipyan (119) recorded a fatal case from unusual toxicity of the drug, and Kravitz, et al. (61), noted uremia complications with one leukemic patient. Olson (84) reported no improvement in lung carcinoma after TEM administration, but Black and Speer (6) described temporary remission in patients with lung cancer, breast carcinoma and ovary carcinoma.

Nitrogen Mustards. Nitrogen mustards prove to be the second most widely used organic nitrogen compounds in the present study. HN₂ therapy has been effective against lymphomas (37, 56, 59, 60, 76, 96), Hodgkin's disease (37, 76), lymphatic leukemia (37, 59, 60, 76), and neoplasms of the bladder (41), larynx (41), and tongue (41, 115). Mustards in combination with cortisone (48) or x-rays (3) were effective in Hodgkin's disease and lymphomas. Sato, et al. (109), reported an ovarian carcinoma was inhibited by nitrogen mustard-N-oxide administration. Epithelial neoplasms responded to

azopyrites therapy (18, 23). Roswit and Pisetsky (105) warn of toxic psychosis following a single course of HN_2 therapy.

Urethane. Attention has already been called to the combination TEM and urethane therapy for certain carcinomas (6). Ceresa, et al. (15), described the response to urethane and methyl chloramine treatment of myeloid leukemia. Other investigators reported good results with urethane administration to patients with multiple myeloma (1, 43), and leukemia (43, 125).

TEPA. Farber, et al. (29), recorded results with triethylene-phosphoramide therapy of Hodgkin's disease and other neoplasms.

6-Mercaptopurine. Hall, et al. (44), found this agent gave 63.6% remissions in 11 adults with acute leukemia.

Pyrimidines. Two diaminopyrimidines induced remissions in patients with polycythemia vera (34) and acute leukemia (81).

Ethyleneimines. M 9500 and trimethylolmelamine were effective against Hodgkin's disease, myeloid leukemia, etc. (87).

p-Aminobenzoic Acid. This nitrogen compound was effective against lymphoblastoma cutis and mycosis fungoides (141).

dl-Ethionine. This agent was without effect on neoplasms (134).

III. Hormones

Estrogens. Estrogens have found wide clinical service in the treatment of carcinoma of the prostate (30, 32, 33, 38, 51, 69, 70, 78, 80, 96, 97, 101, 126, 135), carcinoma of the cervix (71, 83), and leukemia (7). Estrogens combined with X-rays proved helpful in roentgen-resistant carcinoma (136), while stilbestrol combined with cortisone therapy was effective against far advanced carcinoma of the prostate (129). Equine induced regressions in breast cancer (117), and TACE produced favorable response in patients with prostatic carcinoma (14, 79).

Androgens. Testosterone treatment prolonged the lives of women with disseminated breast cancer (46). This same hormone and methostan, another androgen, have been used in similar treatment (96).

Cortisone. This hormone has been used to induce subjective and objective improvement in patients with advanced mammary car-

cinoma (31, 88, 133). Cortisone has been used also in cancer patients following adrenalectomy (50). In combination with nitrogen mustard cortisone has acted against lymphoid neoplasms which were resistant to mustards alone.⁴⁸ Raab and Gerber (93) employed cortisone in the management of terminal cases of carcinoma of the colon, pancreas, etc. Weder and Becker (131) noted no significant alteration in leukemic patients given cortisone.

ACTH. This hormone has been useful in terminal malignancies (93). Wright (139) reported that a case of carcinoma of the ovary regressed following ACTH therapy, and Earle, et al. (25), used thymectomy and ACTH to induce temporary regressions in lymphatic leukemia.

Adrenals. Adrenalectomy has been resorted to in the palliative treatment of advanced cancer of the breast (94, 127), prostate (54, 94, 127), and ovary (127).

Hypophysis. Hypophysectomy has been employed in the treatment of breast cancer (89), and malignant melanoma (118). Wolfers (138) reported negative results in the use of hypophyseal implants in inoperable carcinoma. Archer (2) observed that breast cancer has never been associated with Simmond's disease, suggesting that hypopituitarism may be antagonistic.

Cyren. Implants of cyren-A were employed in metastasis of a gastric carcinoma (35).

IV. Miscellaneous Agents

Folic Acid. The folic acid antagonist amethopterin induced remissions in patients with acute leukemia (42). Weintraub, et al. (132), noted subjective improvement in 55% of advanced cases of cancer of the lung, stomach, breast, etc., after teropterin therapy. Isaacs and Trimmer (55) recorded blood cell changes in leukemia following the use of aminopterin.

Colchicine. Huant (52) used colchicine associated with radiotherapy in the treatment of lung metastases. Extracts of *colchicum autumnale* were effective against skin cancer (36) and chronic myeloid leukemia (9), but Ceresa, et al. (15), found colchicine was without benefit to leukemic patients. A new alkaloid, demecolein, was less toxic than colchicine but it had little effect on Hodgkin's disease and other lymphomas (77).

Antibiotics. Soda (120) recorded promising results in the treatment of cancer of the uterus with penicillin, and Ravina and Pestel (95) described temporary improvement in patients with Hodgkin's disease after actinomycin therapy.

Virus. Egypt 101 virus showed some anticancer action in patients with advanced neoplasms (121).

Polysaccharides. Reimann (96) employed these agents in treating malignant metastases.

Arginase. The Cancer Committee of the California Medical Association reported no objective evidence of improvement in patients given this enzyme (12).

Laetriles. The same authority found this agent ineffective against neoplasms in patients and animals (13).

p-Hydroxypropiophenone. Two reports have been filed on the anticancer action of this ketone (19, 90).

Trichloroacetic Acid. Malignant papillomas responded to treatment with this chemical (20).

Chaulmoogra. Esters of chaulmoogric acid showed inhibitory action on cancer of the uterus, larynx, etc. (66, 67).

HBF 386. This cyostatic agent was used in X-ray therapy of leukemia (112, 113).

Azaserine. o-Diazoacetyl-l-serine prolonged the lives of patients with Hodgkin's disease and acute leukemia (26).

Mercurized Indigo. Gore (39) reported that injections of mercurized indigo solutions prolonged the lives of patients with carcinoma of the bone and breast, adenocarcinoma of the lower bowel and follicular lymphoma.

Mustard Applications. This agent was not effective on primary tumors of the prostate, rectum, uterus, etc., but it was against secondary tumors (63, 64).

Reichstein's Substance S. River, et al. (100), noted subjective improvement in patients with advanced breast cancer.

Vitamins. Large doses of A and C vitamins have been used in the therapy of various sarcomas and carcinomas (111). Nicotinamide relieves X-ray sickness (53).

Yeast. Protti's yeast inhibited carcinomas (40).

Transfusions. Blood transfusions delayed the growth of the neoplasms (22, 66).

Acknowledgments

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BOOK REVIEW

Rutin and Related Flavonoids. By John Q. Griffith, Jr., M.D., Charles F. Krewson, Ph.D., and Joseph Naghski, Ph.D. Mack Publishing Company, Easton, Pa., 1955. ix + 275 pages. Price \$7.50.

This monograph provides information concerning the chemistry and production of rutin, describes its pharmacology, evaluates the extensive clinical research of Dr. Griffith and his associates, and reviews the work of other clinicians. It also includes a chapter on the preparation and initial clinical studies on the flavonol aglycone quercetin, which may be obtained by hydrolysis of rutin.

Most of the clinical results reported in this book have not previously been published. Clinical studies of the authors over a period of 9 years have included 3140 hypertensive patients of whom approximately 19 per cent showed evidence of capillary fault; rutin corrected such fault in approximately 88 per cent of cases. A chapter deals with the effect of rutin therapy on mortality, in which such significant statements as the following appear: (1) "for every 100 deaths in an untreated hypertensive population there are 23 deaths due to coronary occlusion but only 8 if rutin therapy is administered"; (2) "treatment of capillary fault with rutin prevents 88 out of every 100 deaths due to apoplexy".

This new evaluation of a drug which has had somewhat of a controversial career in therapeutics should be read by all who have an interest in medicinal agents.

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